The Beagle, Records of the Museums and Art Galleries of the Northern Territory, 1998 **14**: 103-108

NEW RECORDS OF THE WATER MITE FAMILIES ANISITSIELLIDAE, MOMONIIDAE AND MIDEOPSIDAE FROM AUSTRALIA, WITH THE DESCRIPTION OF TWO NEW SPECIES (ACARI: ACTINEDIDA)

HARRY SMIT
Emmastraat 43-a, 1814 DM Alkmaar, The Netherlands

ABSTRACT

Two new species of the water mite genus *Gretacarus, G. bifalcisetus* sp. nov. and *G. tuberipalpis* sp. nov., are described from the Northern Territory and Western Australia. *Momoniella australica* Cook is recorded for the first time from the Northern Territory and Western Australia. Finally, a new record is given for *Sigthoria nilotica* (Nordenskiöld) from the Northern Territory.

KEYWORDS: Acari, Actinedida, water mites, new species, Northern Territory, Western Australia, Australia

INTRODUCTION

Although the first water mite species from Australia was already described at the end of the 19th century, publications on water mites were scarce until the 1940s. The publication by Cook (1986), who deseribed more than 200 new species, was a major leap forward in our knowledge of Australian water mites. Until recently, most publications dealt with the water mite fauna of eastern and southeastern Australia, and very few species were known from northern and western Australia. This paper is part of a series which aims to describe the water mite fauna of northern and western Australia. For each family new records will be given and, if appropriate, new species will be deseribed.

In this paper the water mite families Anisitsiellidae, Momoniidae and Mideopsidae are treated, all small families in Australia. The Anisitsiellidae are represented in Australia by four genera, *viz. Sigthoria* Koenike, *Anisitsiellides* Lundblad, *Rutacarus* Lundblad and *Mamersella* K. Viets, with one, five, two and one species respectively (Harvey 1990c). The Momoniidae are represented in Australia by two genera, *viz. Partidomomonia* Cook and *Momoniella* Viets, both with two species (Cook 1986; Harvey 1990a). The family Mideopsidae is represented by four genera, *viz. Gretacarus* K.O. Viets, *Penemideopsis* Cook, *Guineaxonopsis* Imamura and *Tillia* Harvey, with eleven, three, one and one species respectively (Cook 1986; Harvey 1990b, 1996). So far, only the genera *Sigthoria, Penemideopsis* and *Tillia* have been reported from the Northern Territory and Western Australia.

In this study new reeords are presented from the Northern Territory and Western Australia, and two new species are described from the genus *Gretacarus*.

MATERIALS AND METHODS

All material has been collected by the author. Northern Territory holotypes and paratypes have been deposited in the Northern Territory Museum (Darwin) (NTM), Western Australia holotypes and paratypes in the Western Australian Museum (Perth) (WAM). Further, paratypes and all non-type material have been deposited in the Zoologieal Museum of the University of Amsterdam (ZMA).

Measurements of palp and leg segments are dorsal lengths. Measurements of paratypes are given in brackets. The following abbreviations have been used: PI–PV palp segments 1–5; I-leg-5 fifth segment of first leg. All measurements are in µm.

SYSTEMATICS

Sigthoria Koenike, 1907

Sigthoria Koenike, 1907: 127.

Sigthoria nilotica (Nordenskiöld, 1905)

Amasis niloticus Nordenskiöld, 1905: 9.

Material examined. ZMA, 8 ♂♂, 2 ♀♀, Douglas Hot Springs, Northern Territory, Australia, 31 July 1994.

Sigthoria nilotica is a widespread species, known from Asia and Africa, with one record from The Netherlands (Smit and Van der Hammen 1992). From Australia the species is known from the Northern Territory, Queensland and Victoria (Viets 1981; Harvey 1990c). The status of specimens from Queensland and Victoria has to be confirmed (Harvey 1990c). Maximum length of the males in this study is 572, and is larger than the data given by Harvey (1990c).

The locality of the new record is a very hot spring (main spring up to 60°C); the species is able to withstand high temperatures.

Momoniella Viets, 1929

Momoniella Viets, 1929: 236.

Momoniella australica Cook, 1986

Momoniella australica Cook, 1986: 284.
Momoniella australica – Smit 1992: 105.

Material examined. *Northern Territory.* ZMA, 1 ♂, 3 ♀♀, Radon Springs, Kakadu National Park, 19 July 1994; 1 ♀, pool at Twin Falls, Kakadu National Park; 2 ♂♂, plunge pool at Edith Falls, Katherine Gorge National Park.

Western Australia. ZMA, 1 ♀, pond at Dales Gorge, Hamersley Range National Park; 1♂, 8♀♀, Deep Reach Pool, Millstream-Chichester National Park, 15 August 1994; 4 ♀♀, western part of Deep Reach Pool, Millstream-Chichester National Park, 16 August 1994; 1♀, Crossing Pool, Millstream-Chichester National Park, 16 August 1994.

Remarks. Hitherto, the species has only been reported from eastern Australia (Tasmania, New South Wales, Queensland). Therefore, the records from the Northern Territory and Western Australia mean a considerable range extension of the species.

Gretacarus K.O. Viets, 1978

Gretacarus K.O. Viets, 1978: 90.

This is the first record of this genus from the Northern Territory and Western Australia. Females are difficult to recognize, and assignment of the females is based on association with the males. Females are therefore not always illustrated.

Gretacarus bifalcisetus sp. nov.
(Fig. 1A–F)

Type material. HOLOTYPE – WAM 97/3250 ♂, small streams originating in Chinderwariner Pool, Millstream-Chichester National Park, Western Australia, Australia, 15 August 1994 (WAM). PARATYPES – WAM 97/3251-5, 3 ♂♂, 2 ♀♀, and ZMA, 4♂♂, 2♀♀, same data as holotype.

Diagnosis. IV-leg-4 with two long, hyaline falcate setae, and one falcate setae which is contracted distally; dorsal margin of PIV with a small bump.

Description. *Male.* Dorsal and ventral shields present. Body 553 (534–563) long and 495 (500) wide. Dorsal shield 479 (446–485) long and 422 (422–430) wide. Second pair of glandularia on dorsum much closer together than other two pairs (Fig. 1E). Long ridges extending posteriorly of fourth coxal fields. Genital field 72 long, posterior part 48 wide. Genital field with approximately 30–31 acetabula, posterior part three rows wide, anterior part two rows wide (Fig. 1A). Lengths of PI-V: 43, 43, 31, 46, 22. Heavy seta of PIV saddle-shaped, on long tubercle; dorsal margin of PIV with small bump in the middle. PIII with a short, blunt seta on dorsal margin (Fig. 1B). Lengths of I-leg-4-6: 60, 70, 84 (measured

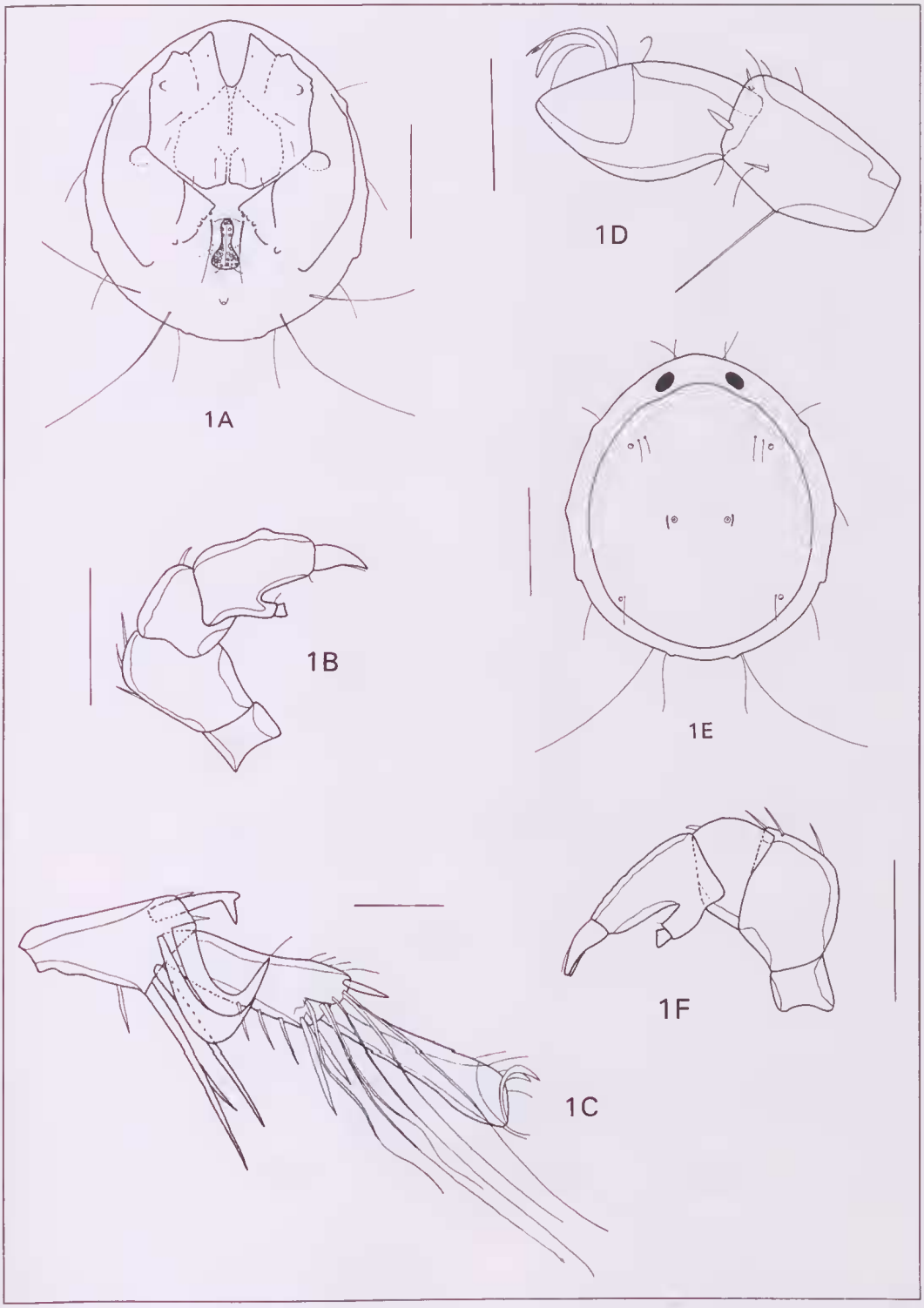

Fig. 1. *Gretacarus bifalcisetus* sp. nov., holotype ♂ **A**, ventral view; **B**, palp; **C**, IV-leg-5-6; **D**, I-leg-5-6; **E**, dorsal view; **F**, paratype ♀, palp. Scale lines: A and E, 200 µm; B–D and F, 50 µm.

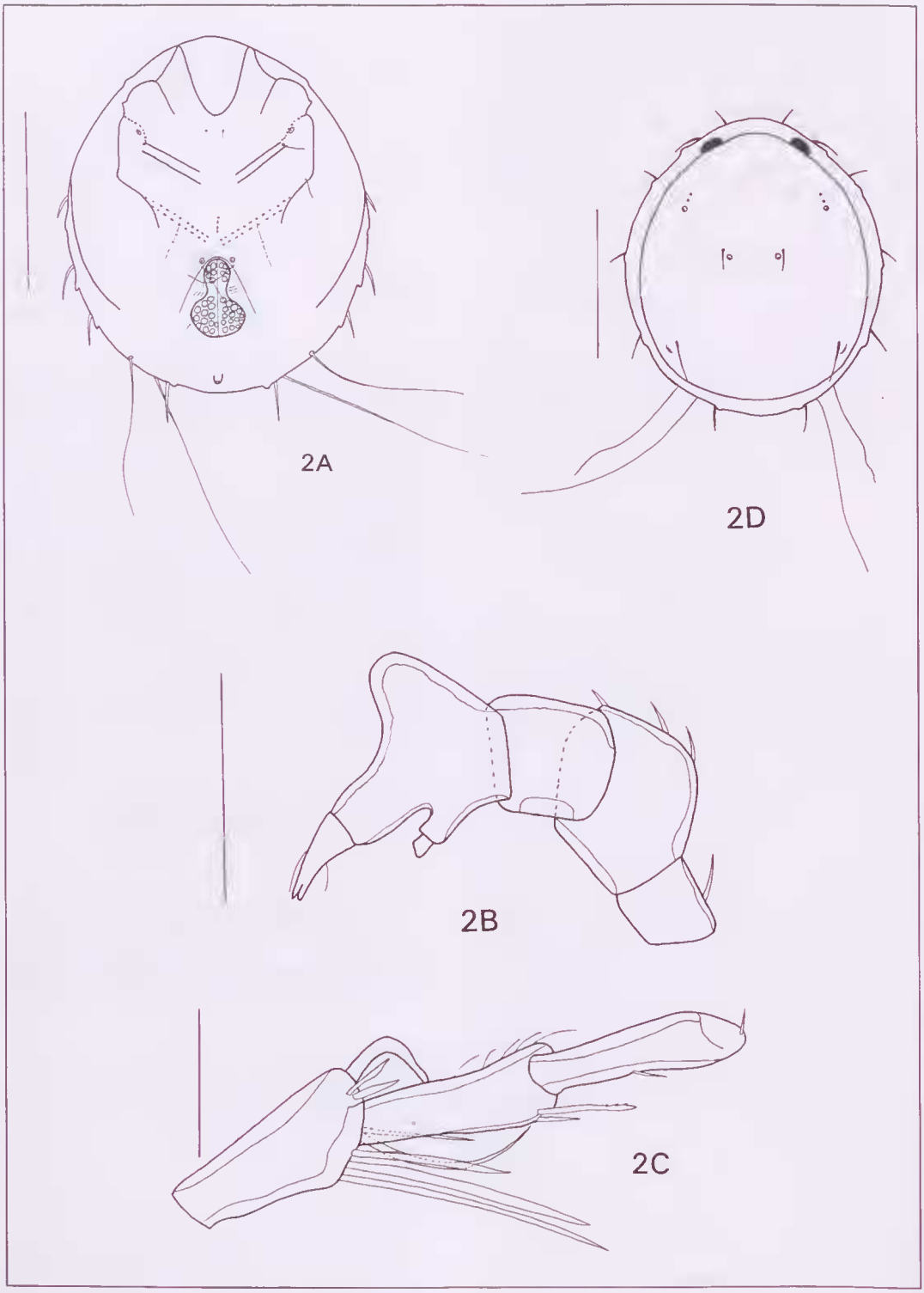

Fig. 2. *Gretacarus tuberipalpis* sp. nov., holotype ♂. **A**, ventral view; **B**, palp; **C**, IV-leg-4–6; **D**, dorsal view. Scale lines: A and D, 200 µm; B and C, 50 µm.

from anterior tip of segment). Lengths of IV-leg-4-6 86, 98, 115. IV-leg-4 with two long, hyaline falcate setae, and one faleate setae which is contracted distally (Fig. 1C). Claws of first and second legs with large clawlets (Fig. 1D); dorsal clawlet of these legs bifurcate. Third and fourth legs with swimming setae.

Female. Dorsal and ventral shields present. Body 553 (543) long and 514 (504–524) wide; dorsal shield 495 long and 446 wide. Coxoglandularia 2 anterior to genital field. Genital field 156 wide, gonopore 108 long. Genital plates two to three acetabula in width. Lengths of PIV: 19, 43, 31, 49, 22. Palp as in male, except PIV, whieh lacks small bump in dorsal margin, and ventral margin of the tubercle more bowed (Fig. 1F). Lengths of I-leg-5-6: 67, 91. Lengths of IV-leg-4-6: 89, 100, 110.

Remarks. Its elosest relative is *Gretacarus expansisetus* Cook, which has a more or less similar genital field. The latter species has more acetabula (posterior part five rows wide), laeks the bump on PIV and has four widened seta on IV-leg-4. The female ean probably not be separated from other females.

Etymology. Named for the two falcate hyaline setae of IV-leg-4.

Gretacarus tuberipalpis sp. nov.
(Fig. 2A–D)

Type material. HOLOTYPE – ♂, Lily Ponds Falls, Katherine Gorge National Park, Northern Territory, Australia, 27 July 1994 (NTM). PARATYPES – NTM, 1♀ and ZMA, 1♂, 2♀♀, same data as holotype; WAM 97/3256, 1♂, pond at Kalamina Gorge near falls, Hamersley Range National Park, Western Australia, Australia, 13 August 1994.

Diagnosis. PIV of male dorsally with very large hump, IV-leg-4 of male with one falcate seta.

Description. *Male*. Dorsal and ventral shields present. Body 369 (398–553) long and 320 (369–514) wide; dorsal shield 339 long and 291 wide. Setae assoeiated with lateroglandularia stout. Seeond pair of glandularia on dorsum much closer together than other two pairs (Fig. 2D). Coxoglandularia 2 at same level of anterior margin of genital field. Ridges extending posteriorly from fourth coxal plates indistinct in holotypc, but distinct in paratype from Western Australia. Gonopore 76 long, posterior part of genital field 53 wide. Genital field with 13–16 acetabula posteriorly and five aeetabula anteriorly (Fig. 2A). Dorsal lengths of PI–PV: 17, 36, 29, 43, 21. PIV dorsally with unusual, very large hump; heavy seta on relatively short tubercle (Fig. 2B). Dorsal lengths of I-leg-4-6: 50, 48, 41; dorsal lengths of IV-leg-4-6: 74, 72, 58. IV-leg-4 dorsally with curved seta, enlarged anteriorly, and ventrally with thin hyaline curved seta (Fig. 2C, elaw of holotype lost). Claws of first and second legs with large elawlets, dorsal clawlet of these legs bifurcate. Third and fourth legs with swimming setae.

Female. Dorsal and ventral shields present. Body 436 (398–417) long and 388 (359–378) wide; dorsal shield 378 long and 335 wide. Coxoglandularia 2 anterior to genital field. Genital field 170 wide, gonopore 125 long. Genital plates two acetabula in width. Lengths of PIV: 17, 36, 26, 42, 19. Palp without distinct eharacters, lacking large hump of PIV, while tubercle of ventral margin of PIV is longer. Lengths of I-leg-4-6: 48, 53, 48. Lengths of IV-leg-4-6: 80, 86, 89.

Remarks. No other species of the genus has PIV with sueh a large hump. Although there are some differences between the males from the Northern Territory and the male from Western Australia (size, ridges on fourth eoxal plates), both have the same eharacteristic palp, and also the fourth leg and genital field are similar. They are therefore assigned to the same species. The female probably eannot be separated from other females.

Etymology. Named for the large hump of PIV.

ACKNOWLEDGMENTS

I am indebted to the Western Australian Department of Conservation and Land

Management (Como), the Australian National Parks and Wildlife Service (Darwin) and the Conservation Commission of the Northern Territory (Palmerston) for their permission to collect water mites in the national parks of Western Australia and the Northern Territory and to G.M. van der Pal for her assistance with the fieldwork.

REFERENCES

Cook, D.R. 1986. Water mites from Australia. *Memoirs of the American Entomological Institute* **40**: 1–568.

Harvey, M.S. 1990a. Two new species of *Partidomomonia* Cook from south-eastern Australia (Acarina: Momoniidae). *Memoirs of the Museum of Victoria* **50**: 337–340.

Harvey, M.S. 1990b. Two new water mite genera from south-western Australia (Acarina: Aturidae, Mideopsidae). *Memoirs of the Museum of Victoria* **50**: 341–346.

Harvey, M.S. 1990c. A review of the water mite family Anisitsiellidae in Australia (Acarina). *Invertebrate Taxonomy* **3**: 629–646.

Harvey, M.S. 1996. Two new species of the water mite genus *Penemideopsis* from Western Australia (Acarina: Mideopsidae). *Records of the Western Australian Museum* **17**: 443–446.

Koenike, F. 1907. Fünf neue Hydrachniden-Gattungsnamen. *Abhandlungen herausgegeben vom naturwissenschaftlichen Verein zu Bremen* **19**: 127–132.

Nordenskiöld, E. 1905. Hydrachniden aus dem Sudan. In: Jägerskiöld, A. (ed.), *Results of the Swedish Zoological Expedition to Egypt and the White Nile* 1901 **2**: 1–12.

Smit, H. 1992. Water mites from New South Wales and Queensland, Australia (Acari, Hydrachnellae). *Tijdschrift voor Entomologie* **135**: 91–112.

Smit, H. and H. van der Hammen, 1992. New and rare water mites from The Netherlands (Acari: Hydrachnellae). *Entomologische Berichten* **52**: 144–146.

Viets, K. 1929. Weitere neue Hydracarinen-Gattungen von A. Thienemanns Sunda-Expedition. *Zoologischer Anzeiger* **83**: 233–240.

Viets K.O. 1978. New water mites (Hydrachnellae: Acari) from Australia. *Australian Journal of Marine and Freshwater Research* **29**: 77–92.

Viets K.O. 1981. Wassermilben (Acari, Hydrachnellae) aus dem Northern Territory, Australia. *Entomologica Scandinavica, Supplement* **15**: 333–336.

Accepted 14 April, 1998